



Preliminary Ecological Appraisal (PEA) and BREEAM Ecology Report

Barton Buildings, Uxbridge Industrial Estate

Camps Environmental Services Ltd

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Summary

Camps Environmental Services Ltd were commissioned by Envision to undertake a Preliminary Ecological Appraisal (PEA) on the Barton Buildings site located in the Uxbridge Industrial Estate.

The assessment is focused towards specific BREEAM land use and ecology issues. The assessment has been undertaken using the BREEAM New Construction 2018 manual.

The current design proposal (dated May 2019) plans the demolition of the Barton Buildings units and construction of two large buildings in their place with accessible entrances for heavy-goods vehicles, a car park and yard.

The Site currently consists of a consolidation of a hardstanding industrial yard, a carpark adjacent to Arundel Road and the Barton building single-storey structures which are divided into 6 mixed-sized units. There are a few semi-mature trees within the site boundary and an area of scrub.

The current design shows that the western boundary will be retained, reducing impact on the strip of deciduous woodland which occurs adjacent to the site and in 'the zone of influence'.

A Preliminary Ecological Appraisal highlighted the potential presence of reptile onsite and nesting opportunity for breeding birds.

A Preliminary Roost Assessment confirmed that proximity of the buildings to suitable foraging, roosting and commuting habitats including woodland and a watercourse increases likelihood of bat presence. Four of the six buildings surveyed (Units B-E) have suitably sized bat access points and concealed roosting locations and were assessed with low potential to support roosting bats. The remaining two buildings (Unit A & F) have been determined as negligible suitability to support roosting bats.

Due to the assessment of the Units B-E as having low potential to support roosting bats, a single Phase II bat survey to confirm presence/absence onsite has been recommended. No further bat surveys are necessary for Units A & F.

Examples of key recommendations for mitigating potential impacts include; timing works according to the ecological activity calendar, a reptile hand search prior to scrub removal and nesting bird checks prior to removal of the trees or destruction of buildings.

Recommendation for enhancing biodiversity include erection of a variety of bat boxes and bird boxes, creation of a green buffer strip of native species planting between the yard and adjacent woodland habitat to the west and encouraging climbing vegetation on the new metal fences.

The report can be used to guide site design to achieve credits under BREEAM issues LE03 LE04 and LE05.

Summary of BREEAM Credits:

BREEAM section	Available credits	Pre-Requisite(s) Met?	Credits likely to be awarded based on evidence	Further action to gain residual credits
LE01	Up to 2	N/A	1	A Contaminated land professional to confirm if criteria 2 & 3 can be met to achieve an additional 1 credit.
LE02	Up to 2 + 1 Exemplary	Yes	2	Achievement of the exemplary credit under LE02 to be decided by the assessor. Achievement of this credit requires credits to be achieved in other BREEAM chapters not available to CES Ltd at the time of writing.
LE03	Up to 3	Yes	3	The client has confirmed that the Phase 2 bat surveys will be carried out, if no bats are recorded to be roosting in the buildings, CES recommends the additional credit in light of 'no overall loss of ecological value' following confirmation.
LE04	Up to 4 + 1 Exemplary	Yes	4	The calculation of the change in ecological value occurring as a result of the project, has been calculated in accordance with the process set out in GN36 - BREEAM Net gain of ecological value As the percentage score is 300, an additional exemplary level credit is available (3 credits - score of 105 – 109%).
LE05	Up to 2	Yes	2	The client has confirmed a 5 year management plan will be produced to provide an ongoing strategy to sustain ecological enhancement, if this is completed CES recommends the second credit is given.
Total	Up to 13 (+ 2 Exemplary)	N/A	12	

1.1 Introduction

- 1.1.1 Camps Environmental Services were commissioned by Envision to conduct a Preliminary Ecological Appraisal (PEA) on Barton Buildings, located in the Uxbridge industrial estate (Ordnance Survey Grid Reference TQ047830). This survey was required to support planning application for demolition of the degrading buildings and redevelopment of two high-quality mixed-use industrial warehouses.
- 1.1.2 The PEA includes a desk study and a multi-disciplinary site walk-over survey to identify ecological constraints associated with the development proposal. The sites potential to support legally protected species or habitats of high nature conservation value was assessed and recommendations for mitigation and enhancement are provided to ensure optimum ecological value.
- 1.1.3 As part of the PEA, a Preliminary Roost Assessment (PRA) was conducted as the Barton Buildings were identified to have bat roosting potential, due to the age and structure of the buildings and also their proximity to woodland and fresh water.
- 1.1.4 This assessment is focused towards specific BREEAM Land Use and Ecology Credits LE01, LE02, LE03, LE04 and LE05 and has been undertaken using BREEAM 2018 criteria for the UK.

1.2 Site Location and Description

- 1.2.1 The Barton Buildings site (hereafter “the Site”) is located in the Uxbridge Industrial Estate, Arundel Road, UB8 2SN, Ordnance Survey Grid Reference TQ047830 (Figure 1).
- 1.2.2 The Site is a consolidation of a hardstanding industrial yard, a carpark adjacent to Arundel Road and the Barton building structures which are divided into mixed-sized units. The buildings are single storey with a mixture of pitched, metal and asbestos-type boarded roofs as well as flat concrete roofs. The buildings have rendered external walls with windows and the pitched roofs have windows running in length along the roof slope.
- 1.2.3 The site is encircled by a fence on the western and northern boundaries. The western edge fence is metal and separates the site from deciduous woodland. The northern edge fence is wooden and separates the site from an adjacent industrial yard and access road. The southern boundary is an alley which runs parallel to an adjacent building at approximately 1.5m wide.
- 1.2.4 Onsite there is a section of species-poor scrub between the most southwestern building and the western boundary fence. There are a few singular trees between the most northeastern building and northern fence boundary.



Figure 1: The site location within the Uxbridge Industrial Estate and boundary highlighted by a red dash line (CES Ltd, 2020)

1.3 Proposed Development

1.3.1 The proposed development is to demolish the existing buildings and build two new units in their place, the design includes;

- Two units of 58m² office space and 526m² workspace
- 6 standard car parking spaces and 2 accessible car parking spaces
- An entrance to each unit and delivery access on the northern side
- A layby on Arundel road to the front of the units
- A triangular shaped service yard to the rear
- Access road of 3m width between the rear of the building and site boundary

1.4 Objectives

1.4.1 Preliminary Ecological Appraisal

- Identify any designated nature conservation sites on or in the vicinity of the Site
- Identify any known records of protected or notable species in the vicinity of the Site
- Record the main features of ecological interest
- Assess the ecological value of the Site and the surrounds

1.4.2 Preliminary Roost Assessment

- Determine the suitability of the units on site to support a bat roost.
- Assess the potential ecological impact and outline any further surveys required

1.4.3 BREEAM Assessment Focusing on Land Use and Ecology

- Ensure environmental quality through an accessible, holistic and balanced measure of environmental impacts through best practice
- Use quantifiable measures in determining environmental quality
- Make suggestions for mitigation, compensation and enhancement

2.0 Legislation and Policy

There are several acts of legislation and policy relevant to the proposed works. Full details of statutory obligations with respect to biodiversity and the planning system can be found in DCLG Circular 06/2005.

2.1 The Conservation of Habitats and Species Regulations 2017

2.1.1 This legislation transposes the EU Habitats Directive (Council Directive 92/43/EEC) into domestic law. The regulations makes it an offence to deliberately capture, kill or injure individuals of these species listed on Schedule 2 and damage or destroy their breeding site or place of shelter. It is also illegal to deliberately disturb these species in such a way as to be likely to significantly affect the ability of any significant group of the species to survive, breed or rear or nurture their young; or the local distribution or abundance of the species.

The Regulations provide protection for a number of species including:

- All species of bat
- Dormouse (*Muscardinus avellanarius*)
- Otter (*Lutra lutra*)
- Great crested newt (*Triturus cristatus*)

2.1.1.1 Where development has the potential to impact European protected species, the results of a protected species survey must be submitted with a planning application.

2.1.2 Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are also protected under this legislation. These are a network of sites designated for supporting habitats or species of high nature conservation importance in the European context. Any activity that has a detrimental effect on these European sites is made an offence under the Regulations. Where a development is likely to have a significant impact on a European site, the Regulations require a rigorous assessment of the impacts.

2.2 The Wildlife and Countryside Act 1981 (and amendments)

2.2.1 Protected fauna and flora are listed under Schedules 1, 5 & 8 of the Act. Species likely to be of relevance include:

- All bat species- it is an offence to intentionally or recklessly disturb any bat whilst it is occupying a roost or to intentionally or recklessly obstruct access to a bat roost
- Reptiles- It is illegal to kill or injure all species of British reptile (in particular grass snake (*Natrix natrix*), common lizard (*Zootoca vivipara*), adder (*Vipera berus*) and slow-worm (*Anguis fragilis*).
- Great crested newt- it is illegal to obstruct access to any structure or place which great crested newts use for shelter or protection or to disturb any great crested newt while it is using such a place.
- Wild birds- it is an offence to intentionally kill, injure or take any wild bird or to take, damage or destroy their eggs and nests (whilst in use or being built). In addition, it is an offence to disturb any nesting bird listed on Schedule 1 or their young.

2.2.2 Schedule 9 of the Act lists species which, if spread, is an offence. Schedule 9 likely to be encountered include Japanese knotweed (*Fallopia japonica*) and giant hogweed (*Heracleum mantegazzianum*).

2.2.3 Sites of Special Scientific Interest (SSSIs) are also protected under the Wildlife and Countryside Act 1981.

2.3 The Countryside and Rights of Way Act 2000

2.3.1 This Act strengthens nature conservation and wildlife protection by placing a duty on Government Ministers and Departments to conserve biological diversity, providing police with stronger powers relating to wildlife crimes, and improving protection and management of SSSIs.

2.4 The Protection of Badgers Act 1992

2.4.1 This Act makes it an offence to willfully take, injure or kill a badger (*Meles meles*); cruelly mistreat a badger; interfere with badger setts, sell or possess a live badger; mark or ring a badger. A license is required for work affecting badgers and their setts.

2.5 Wild Mammals (Protection) Act 1996

2.5.1 This Act provides protection for all wild animals from intentional acts of cruelty.

2.6 National Planning Policy Framework (NPPF)

2.6.1 The NPPF sets out the Government's vision for biodiversity in England with the broad aim that planning, construction, development and regeneration should maintain and enhance, restore or add to biodiversity and geological conservation interests. NPPF includes sections on legally protected species and sites;

- Local Sites (including Sites of Importance for Nature Conservation (SINCs), Local Nature Reserves (LNR), and Biological Notification Sites (BNSs)/County Wildlife Sites (CWSs).
- Biodiversity Action Plans (BAPs) set out policy for protecting and restoring priority species and habitats as part of the UK's response as signatories to the Convention on Biological Diversity.
- Habitat and Species Action Plans that are likely to be of relevance include: Slow worm (*Anguis fragilis*) (UK BAP), Common lizard (*Zootoca vivipara*) (UK BAP), Soprano pipistrelle bat (*Pipistrellus pygmaeus*) (UK BAP), Brown long-eared bat (*Plecotus auritus*) (UK BAP), Dormice (*Muscardinus avellanarius*) (UK BAP)
- Natural England Protected Species Standing Advice: The standing advice is used by local authorities as a fallback position when in pre-application consultation or during the determination period to define habitat and species survey efforts and mitigation proposals.

2.7 Local Planning Policy

2.7.1 Relevant local planning policies for the area of Uxbridge can be found in the London Borough of Hillingdon's Local Plan Part 2- Development Management Policies.

2.7.1.1 The design of a new development is required to retain and enhance existing features of biodiversity value.

2.7.1.2 The process of design should avoid causing significant harm to biodiversity. Where avoidance is not feasible, mitigation measures will need to be implemented of equal biodiversity value on-site; these should also consider loss of habitat for non-protected species as these are also

considered important. Design should seek to retain and enhance ecological features as much as possible on-site.

2.7.1.3 If 2.8.1.2 is not possible, specific areas of the site will be allocated to wildlife creation accompanied by a clear management plan. If an on-site location cannot be found due to site constraints, then as a last resort, appropriate contributions off-site improvements are to be delivered through a legal agreement.

2.7.1.4 Any proposals that will cause significant harm will normally be refused.

2.7.1.5 Any works near to sites of Ecological or Geological value need to be supported by the correct level of surveys and assessments that demonstrate 'no unacceptable effects' will occur to these sites as part of the development. The development must contribute positively towards the enhancement and protection of the any sites or features that hold ecological value.

2.7.1.6 All ecological reports and information submitted should follow nationally accepted best practice survey standards and the British Standard BS 42020: 2013 Biodiversity – Code of Practice for Planning and Development.

2.7.1.7 The Council will use, when needed, the DEFRA biodiversity impact calculator (as updated) to inform decisions on no net loss and net gain, as well as applying Natural England's standing advice within the validation stage. Applications will only be validated where they have provided the correct level of assessment and surveys for features of Ecological and Geological importance. Where initial assessments recommend further surveys, these will be expected to be provided as part of a planning submission.

D R A F T

3.0 Methodology

3.1 PEA Desk Study

- 3.1.1 A desk study was undertaken in March 2020; the objective of the desk study was to review any existing information available in the public domain concerning species and habitats associated to the site, sources for information include Magic.gov.uk, NBNatlas.org and hillingdon.gov.uk.

3.2 Site Survey

- 3.2.1 The PEA survey involved a site walkover, assessment of habitats, land use and ecological features. Habitat adjacent to the site boundary was noted to aid in determining the zone of influence.
- 3.2.2 The survey was performed by Katie Jones BSc (Hons) (Wye College, University of London) MCIEEM, an experienced ecologist of 16 years and holder of Natural England (NE) CL18 Level 2 bat survey licence, a NE bat Mitigation Class Licence, a NE barn owl licence and NE CL09 Level 2 great crested newt licence.
- 3.2.3 Katie was assisted by Sophie Field BSc (Hons) MSc (University of Plymouth) GradCIEEM, an environmental consultant of two years and holder of Natural England Level 1 great crested newt licence, with experience in ecological surveying for bats, dormice, badgers and reptiles.
- 3.2.4 The PRA was conducted on all three buildings which have been divided into six units to reflect the current work place structure. The survey methodology followed guidance outlined in the Bat Conservation Trust Good Practice Guidelines (Collins, 2016) and gave a rating of negligible-to-high suitability in accordance with section 4.3. The assessment was conducted via an external and internal appraisal from the ground, accessing areas closer to the internal roofs where possible. Signs of bat activity such as droppings, feeding remains and urine stains were searched for around all accessible areas.

3.3 BREEAM Assessment Methodology

- 3.3.1 The development has been assessed against specific BREEAM Land Use and Ecology Credits, sections LE01, LE02, LE03, LE04 and LE05, and has been undertaken using BREEAM New Construction 2018 criteria for the UK with reference to the BREEAM Guidance Note GN34 BREEAM, CEEQUAL and HQM Ecology Risk Evaluation Checklist, GN36 BREEAM, CEEQUAL and HQM Ecology Calculation Methodology- Route 2, and GN40 BREEAM, CEEQUAL, HQM Ecology Assessment Issues Reporting Template.
- 3.3.2 The site survey evaluated the site's ecological baseline looking at current and potential ecological value and condition, direct and indirect risks to ecological value and capacity and feasibility for enhancement to the sites ecological value.
- 3.3.3 The survey was performed by Katie Jones BSc (Hons) MCIEEM, a Suitably Qualified Ecologist ("SQE") and holder of Natural England (NE) CL18 Level 2 bat survey licence, a NE bat Mitigation Class License, a NE barn owl license and NE CL09 Level 2 great crested newt licence (Full accreditation can be seen in Appendix 2).
- 3.3.4 The assessment has been undertaken based on information supplied by Envision at the time of writing and a Site walkover by CES Ltd in March 2020, the Preliminary Ecological Appraisal ("PEA") report produced by CES Ltd, March 2020 and the Detailed Landscape Proposals Drawing No's: 10773-E-101 (Dated: 17.5.19)
10773-E-102 (Dated: 17.5.19)
10773-P-101 (Dated: 15.5.19)
10773-P-102 (Dated: 16.5.19)
10773-P-103 (Dated: 16.5.20)
10773-P-105 (Dated: 20.1.20)
10773-P-106 (Dated: 21.1.20)
- 3.3.5 Any changes to the Site design could significantly affect the conclusions of this assessment.
- 3.3.6 Achievement of the credits will require client and / or contractor's implementation of all recommendations outlined by CES Ltd, as well as a post-construction verification that implementation of the recommendations has been completed, by the Suitably Qualified Ecologist ("SQE").

Table 1: BREEAM Assessment

BREEAM Issue	Description of Criteria	No. credits available	Comments
LE01: Site selection	Previously occupied land	1 credit	Total available credits: 2
	Contaminated land	1 credit	
LE02: Ecological Risks and opportunities	Survey and Evaluation	1 credit	Total available credits: 3
	Determining ecological outcomes	1 credit	
	Exemplary Criteria	1 credit	
LE03: Managing impacts on ecology	Planning and measures on-site	1 credit	Total available credits: 3
	Managing negative impacts	1-2 credit	
LE04: Ecological Change and Enhancement	Liaison, implementation and data	1 credit	Total available credits: 4
	Change and enhancement of ecology	1-3 credit	
	Exemplary criteria		
LE05: Long term ecological management and maintenance	Management and maintenance throughout the project	1 credit	Total available credits: 2
	Landscape and ecology management plan	1 credit	

3.4 Limitations

- 3.4.1 It has been assumed all information provided by third parties is accurate, any information acquired by CES Ltd during the desk top study has not been independently verified by CES.
- 3.4.2 The site visit was conducted in March 2020 and is based upon the conditions encountered and the information available at the time of the survey. As with any survey, it is a documentation of what the surveyor observes on the specific survey day and their interpretation of those observations.
- 3.4.3 Whilst every effort is made to meet the client brief, no site visit can ensure prediction of the natural environment such as movement of species in response to variables such as weather and seasonality.
- 3.4.4 Some mezzanine areas of the structures could not be surveyed due to accessibility, limiting the inspection of some areas from ground level.
- 3.4.5 Potential gaps suspected in the pitched asbestos board type roofs were not visible from the ground.
- 3.4.6 A number of bat species roost in small crevices, e.g. between the asbestos sheeting and underlining, and therefore it possible for individual bats and signs of bats may have been missed as a result of concealment.
- 3.4.7 Bird nests in concealed locations may not have been visible to the surveyor.

4. Results

4.1 Desk Study Results

- 4.1.1 The site occurs within the National Character Area of Thames Valley (115), classified for its unifying feature of the River Thames through a diverse landscape of urban and suburban settlements, infrastructure networks, fragmented agricultural land, historic parks, commons, woodland, reservoirs and extensive minerals workings (Magic.gov, 2020).
- 4.1.2 The industrial estate lies within the Greater London Built Up Area, the surrounding area is urban with some open space. The historic landscape characterisation is for industry in mineral extraction. The western boundary of Barton Buildings borders an area of broadleaved deciduous woodland and the River Colne. To the east, north and south the surrounds are built up urban areas.
- 4.1.3 The soil-scape of the site is loamy and clayey floodplain soils with naturally high groundwater. The site lies on an unproductive, secondary aquifer (Magic.gov.uk, 2020). The geological description of the site is 'Greater London', more information can be found through Natural England.

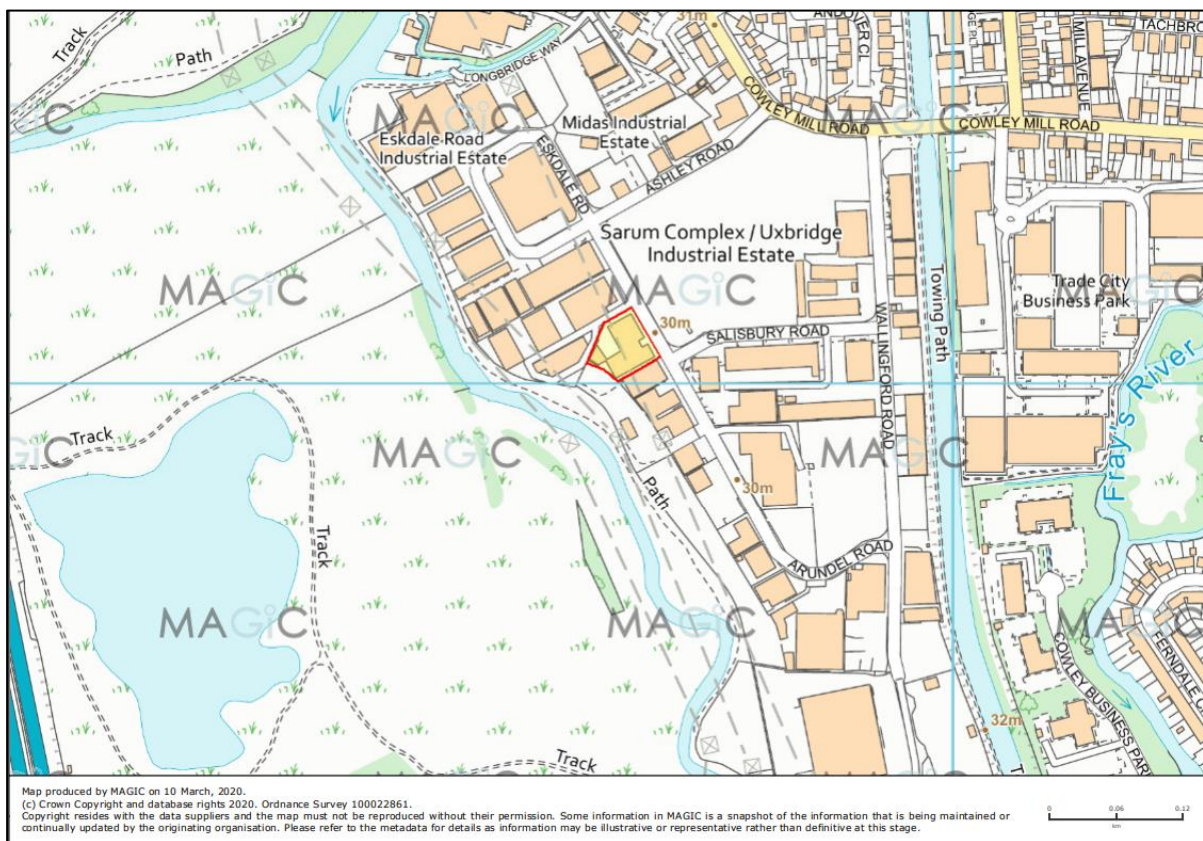


Figure 2: Site location highlighted with red boundary line (Magic.gov, 2020)

- 4.1.4 The open space adjacent to the woodland on the western boundary of the site is an historic landfill site (Appendix Figure 3).

Table 2: Desk Study Results

Designation	Description
Nationally and international designated sites within 2km	There are no internationally or nationally designated sites within 2km.
Locally designated sites within 2km	The woodland on the site boundary is a Nature Conservation Site of Metropolitan or Borough Grade I importance (Appendix Figure 4).
Designated sites for bats within 10km	There are no sites designated for bats within 10km
Protected and priority species records within 2km (Source: NBN CC-BY and OGL attribution)	Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>) Daubenton's Bat (<i>Myotis daubentonii</i>) Slow Worm (<i>Anguis fragilis</i>)
European protected species License applications (See Appendix Figure 1)	Common Pipistrelle (<i>Pipistrellus pipistrellus</i>) and Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>) Case Reference: 2014-3752-EPS-MIT 2014-2019, 480m north Great Crested (<i>Triturus cristatus</i>) Case Reference: 2016-2515-EPS-MIT 2016-2017, 803m northwest
Surrounding land use	On the western side the site backs onto a strip of broadleaved deciduous woodland, the River Colne and an area of open green space used as a golf course. Industrial urban areas surround the site on the north, east and southern side
Ancient woodland	There are no ancient woodlands within the surrounding 2km
Tree protection orders	There are no TPO's within the site boundary, the only trees onsite occur adjacent to the boundary next to Unit F, these are not afforded TPO status.
Water course/ Pond	The River Colne runs approximately 60m west of the site. There is a pond approximately 290m west. Grand Union Canal occurs 250m east.

4.2 Site Survey Results

- 4.2.1 The site visit was undertaken during a daytime visit on 5th March 2020. This visit was carried out at a temperature of 5°C during light to heavy rain and wind gusts of 31mph. Katie Jones and Sophie Field conducted the PEA and PRA.
- 4.2.2 Barton Buildings are divided into six working units and have been labelled units A-F for the purpose of this report. E is technically divided into two separate spaces as there is a switchboard in the southern end of the space.



Figure 3: Barton Buildings frontage looking south west from Arundel Road (Google Street View). Arrow displaying location where photo is taken. The front building is unit A and connects to unit C behind.



Figure 4: The Barton Buildings yard area facing west (Sophie Field). Arrow displays where photo is taken. Unit C is on the left, unit D and unit E are white brick style buildings at the far end of the yard, Unit F occurs on the right hand side of the photograph.

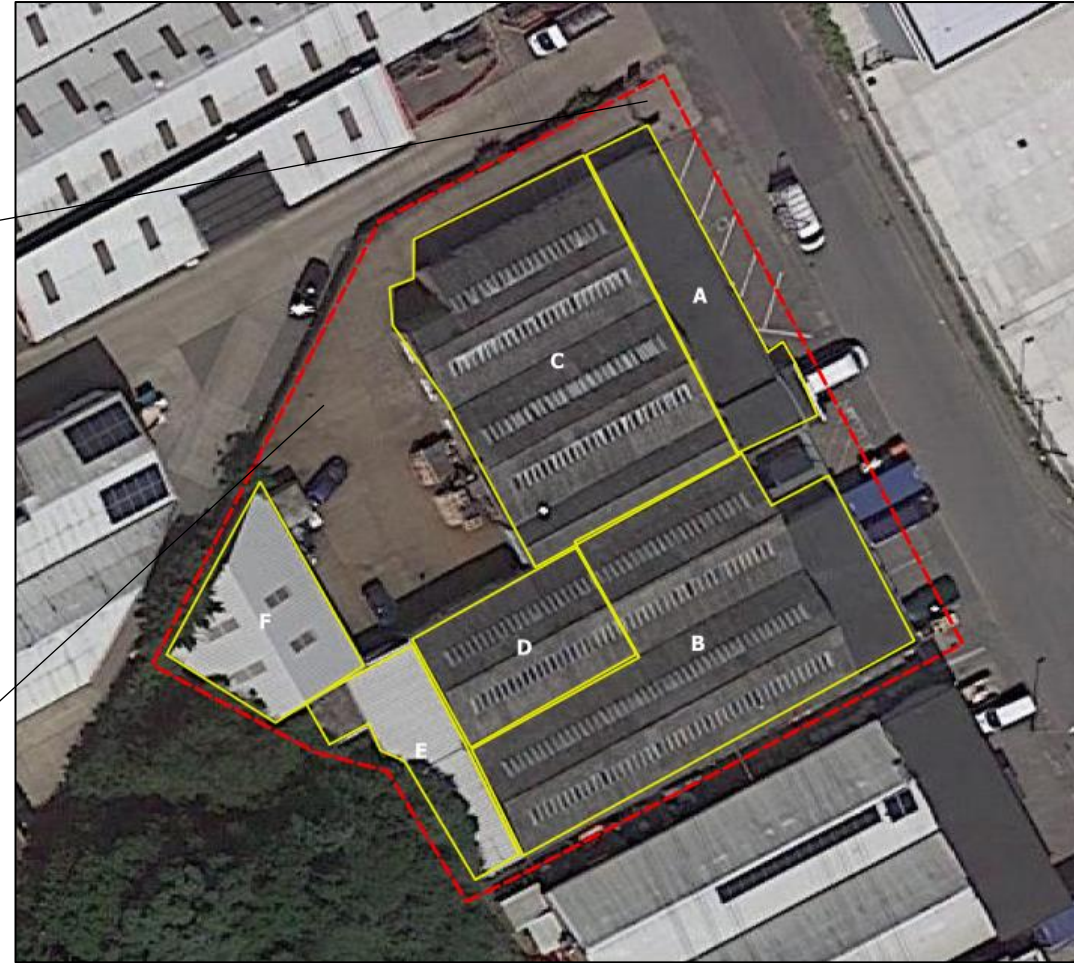


Figure 5: Barton Buildings aerial view divided into units A-F (QGIS)

4.3 PEA: Habitats onsite and in the Zone of Influence

Table 3: Habitats onsite and within the zone of influence

Habitat	Description
Hard standing (onsite)	The site is entirely hardstanding. Open areas of hard standing include the central industrial yard and parking spaces adjacent to Arundel Road. Gaps between the hard standing and the buildings support scattered ephemeral plant species such as dandelion (<i>Taraxacum officinalis agg.</i>). Hard standing with scattered ephemeral plant species is of negligible ecological value.
Buildings (onsite)	There are three buildings onsite divided into six units. There are potential points for wildlife such as roosting bats and nesting birds to gain access to shelter both internally and within the external roof cavities of the buildings. The PRA section below determines ecological suitability of the buildings onsite.
Fences (onsite)	A metal fence is present along the western boundary. A wooden fence occurs on the northern boundary. The fences have no ecological value.
Scattered Trees (onsite)	There are a few scattered trees along the boundary of unit F and within the fence line of the site. One semi-mature Ash tree (<i>Fraxinus spp</i>) of approximately 6m in height occurs on the corner of Unit F. Multiple semi-mature Elder trees (<i>Sambucus spp</i>) occur between the northern fence boundary and Unit F at an approximate height of 6m. The ecological value of the scattered trees onsite is negligible.
Broadleaved woodland (offsite)	There is a strip of woodland along the western boundary of Barton Buildings, separated from the site by a metal fence. The woodland edge is dominated by densely planted semi-mature Willow (<i>Salix spp</i>) and Elder <i>Sambucus spp</i>. Many trunks are consumed by ivy (<i>Hedera helix</i>). Due to the density of the tree and scrub species which reduces light levels, the woodland ground flora is limited to ivy (<i>Hedera helix</i>) and Bramble (<i>Rubus fruticosus agg</i>). It was advised to surveyors during the site visit by a resident occupier of Barton Buildings that the offsite woodland has been disturbed by development located nearby. On inspection, the woodland had experienced considerable fly tipping. The ecological value of the site was considered to be low to moderate.

4.4 PEA: Protected and Priority Species

Table 4: Protected and Priority Species

Species	Associated Habitat	Suitability
Reptiles	Offsite: The habitat outside of the site boundary on the western edge has scattered scrub and woodland. Onsite: Scrub and refuse area between Unit E and western boundary fence.	The woodland habitat lacks diverse habitats, limits sunlight infiltration and likely experiences disturbance from both humans and domestic cats. The woodland edge adjacent to the golf course on the western side could be used by dispersing reptiles, such as slow worm (<i>Anguis fragilis</i>). Areas of fly tipping within the woodland could also be used by hibernating reptiles. Onsite the small area of scrub between Unit E and the woodland would be the only opportunity for sheltering reptiles. No evidence of reptiles were seen onsite.
Breeding Birds	Offsite: The broadleaved woodland and wider area. Onsite: Singular trees on the northern border of Unit F and in both external and internal areas of the buildings.	The woodland and standalone trees would be suitable for breeding birds to build their nests. The flat roof of Unit A and B has the potential to provide a nest location for species such as Pigeons (<i>Columba domestica</i>). The flat roofs are obscured from a ground viewpoint by a perimeter wall. The buildings have a number of concealed cavities which could support crevice nesting bird species such House sparrow (<i>Passer domesticus</i>). Protected nesting opportunity onsite could be found in the building guttering, suitable for species such as Starlings (<i>Sturnus vulgaris</i>). No evidence of bird nesting was seen onsite.
Bats	Offsite: Broadleaved woodland, river, standing water Onsite: Unit roofs and cavities	The offsite land is considered to have moderate suitability for foraging and commuting bats. The offsite woodland is connected to a wider woodland, however this network is relatively small and isolated on a landscape scale as it is stunted by built up areas. The river habitat provides foraging and commuting opportunities. The onsite habitat is mainly hardstanding, shelter opportunities occur in the buildings onsite. An assessment of the suitability for bats in the buildings can be seen in section 4.5 'Preliminary roost assessment'. Studies have shown some species utilise artificial lighting by feeding on insects attracted to the light and therefore the lighting onsite may provide a feeding opportunity onsite; however this is not the case for all species. (Bat conservation trust Guidance note 08/18, 2018). No evidence of bats such as feeding remains or droppings was identified however there are number of concealed roost sites.

Badger	Offsite: Woodland Onsite: None	Woodland may provide suitable habitat for badgers. Disturbance from humans and domestic animals may reduce this suitability. No evidence of badgers was seen onsite and it is unlikely that badgers would regularly use the site as it is dominated by hard standing.
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4.5 Preliminary Roost Assessment Results

4.5.1 Although the location of Barton Buildings is generally built up and urban, the site is immediately adjacent to deciduous woodland and within approximately 200m of a river which is likely to be used by foraging and commuting bats; increasing the likelihood of bat potential onsite.

Table 5: Bat suitability on and offsite divided by roosting, commuting and foraging

	Onsite Suitability	Offsite Suitability
Roosting	Due to the size, age and structure of the scattered trees onsite, they were considered to have low ecological benefits for bats. The buildings onsite have the potential to be pre-1960 with overhanging roof panels and gaps at the wall tops in addition to crevices which provide roosting opportunity.	Trees within the offsite woodland bordering the site (within 5m of the fence) were identified as negligible for the purpose of roosting due to their immaturity.
Commuting	The site has artificial flood lighting located on many of the units which may result in severance of commuting.	The woodland and river habitat may be used by a small number of commuting bats, however there is some isolation to these habitats as the woodland is not considered to be well connected to the surrounding landscape.
Foraging	The artificial flood lighting could be used by light-tolerant species as insect populations concentrate around them.	The woodland, river and wider grassland could be utilised by bats for the purpose of foraging.

Table 6: Summary of Suitability, for full Unit descriptions see Appendix B

Location	Description Summary
Unit A	External • Flat concrete roof and concrete walls • No points of access to the building interior • Lighting located on exterior wall facing east Internal • Loft area is small, has large windows and is well lit. • Potentially high levels of daytime disturbance.

Suitability Rating Negligible

Reasoning: Negligible internal and external roosting opportunities. Roof is primarily flat with no visible roosting opportunity.

Location	Description Summary
Unit B	External • Possible gaps in asbestos-type sheeting in pitch roof. • Lighting located on the exterior wall facing east. The southern wall is lit by the adjacent building. • Potential access point to building interior on the southern exterior wall. Internal • The warehouse is open to the roof. • The warehouse is well lit due to the windows in the roof. • High levels of noise disturbance during the day • External lights on the southern and eastern sides.

Suitability Rating Low

Reasoning: Possible access to internal building, however internal building has disturbance, is well lit and has no wall-ceiling cavity.

Location	Description Summary
Unit C	External • Possible gaps in asbestos-type sheeting in pitch roof. • Overhang between roof and wall creating crevices at the wall top • Gaps between roller door and walls. • Hole in the glass window facing west into the yard allowing for potential internal access. • External flood lighting on the western and northern elevations Internal • Warehouse is well lit by windows in roof. • Experiences lots of disturbance and loud noise • Suspended polystyrene tiled ceiling with degradation holes allowing access into the roof cavity void. • Dark spaces are created above and below the mezzanine levels • Pockets of higher temperatures on the mezzanine floors • Warehouse is heated

Suitability Rating Low

Reasoning: Access points into internal warehouse. Cavity void between ceiling and roof with potential access points. Areas of darkness and warmer temperatures. Internal disturbance reduces suitability.

Location	Description Summary
Unit D	External • Possible gaps in asbestos-type sheeting in pitch roof. • Crevices between roof and top of wall which may allow for crevice roosting • Lighting on the front of the building facing north Internal • Gap between the roof and wall in the north-east corner allows for potential internal access although intact cobwebs surrounding hole suggests bats/birds do not regularly use this gap • Crevices in wall joints in the corners of the warehouse • Noise disturbance is expected due to warehouse activities. • Roof windows fill the unit with light.

Suitability Rating Low

Reasoning: Access points into internal warehouse and crevices between wall joins provides roosting opportunity. Noise disturbance, light penetration through roof reduces likelihood.

Location	Description Summary
Unit E	External • Roof is sloping and made of metal sheeting with no signs of cavities • Roof connection to wall creates gap with bat access potential • Access point through broken fan in window • Ivy (<i>Hedera helix</i>) covered external western wall may be suitable for roosting bats • Outside area between unit and western boundary has overhanging elder and willow making a dark and sheltered corridor • A roller door on northern aspect with joining wall cavities. • Internal • Ceiling is suspended polystyrene tile with a cavity between the ceiling tiles and roof. • Ceiling experiences degradation through loss of tile and holes • No heating • Some noise disturbance

Suitability Rating Low

Reasoning: Access point through fan in the window. Opportunity for access into the ceiling cavity through holes. Crevices at roof and wall connection and at roller door connection. Unit is lit and experiences noise disturbance during the day.

Location	Description Summary
Unit F	External • Pitched metal roof well connected to the unit external walls • Roller door with crevice along the top connecting to the walls allowing potential access for bats • Singular semi-mature trees along the northern wall include a singular Ash (<i>Fraxinus spp.</i>) and multiple Elder (<i>Sambucus spp.</i>)- negligible bat roosting potential • Concentrated Ivy (<i>Hedera helix</i>) occurs on the external western wall Internal • Metal roof with windows filling the unit with light. • Wooden beams occur along the roof, cavities are created where the beams meet the walls. • Ivy (<i>Hedera helix</i>) enters the unit on the southwest corner suggesting a wall roof gap • Insulated and heated creating a more consistent temperature • Lacks disturbance
Suitability Rating Negligible Reasoning: Despite reduced disturbance and temperature consistency, there are no visible access points to the interior and exterior connection between roof and wall appear well sealed.	

D R A F T

4.5.2 A Selection of Suitable Bat Access locations



Unit C, hole in ground floor window



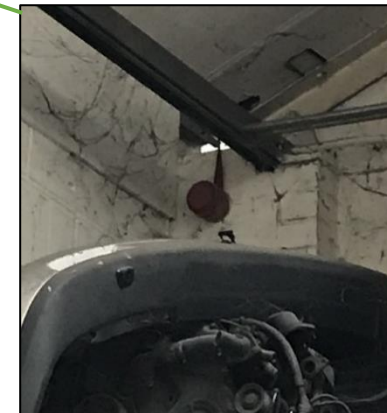
Unit D, gap between roof and wall



Unit E, hole in fan in ground floor window



*Unit B, potential hole in external wall
below roof*



*Unit D access point in the southeast
corner*

5 Potential impacts

- 5.1 According to the design, the woodland adjacent to the site, which is a locally designated site, will be retained. It is presumed that direct impact on the woodland would be restricted to pruning the overhanging trees along the western fence line.
- 5.2 If tracking vehicles along the boundary fence or if the site compound or storage areas are located along the boundary fence, or if there are ground-breaking works then there is a potential for indirect impacts on the adjacent woodland, *e.g.* damaging root zone or tree limbs.
- 5.3 The current plan suggests lighting will not be erected near the woodland, if light spill onto this boundary is avoided and the woodland is preserved there will be no impacts on bats reliant on this feature. If light spill does occur, nocturnal species will be affected and this would reduce the woodland habitat's ability to function as a commuting corridor and foraging site.
- 5.4 The scattered trees onsite will be removed as a result of works; this will have a negligible impact on the ecological value of the Site as these habitats are represented in the wider landscape and the current plan shows re-planting of trees along the northern border. At the time of writing, specific details of the replanting had not been determined, however, it this will be an area of native individual trees to support wildlife and to provide ecological enhancement. If clearance of the scattered trees are completed during the breeding bird season there is a potential to cause disturbance or injury to breeding birds and destroy nests.
- 5.5 The buildings have been identified to possess potential to provide nesting locations for breeding birds. If the demolition works are undertaken during the bird nesting season, there is a potential for nests to be destroyed and the legislation relating to nesting birds contravened.
- 5.6 The section of scrub and refuse between the western boundary and Unit E will be removed during construction. This scrub is species poor and occurs within the adjacent woodland on a larger, more ecologically beneficial scale. The scrub area has the potential to provide shelter to reptiles, if mitigation is not followed there is a risk of killing and injury to reptiles during construction works.
- 5.7 It is expected that noise disturbance to offsite habitats within the zone of influence will occur during construction through increased human presences, noise generating equipment and increased vehicle use.
- 5.8 Units B, C, D and E have been listed as low potential for bat roosting suitability in terms of the Bat Survey Guidelines (2016). Due to proximity to woodland and a river, as well as potential bat access points into the buildings, the presence of bats cannot be ruled out. Without mitigation, physical modification of a roost may occur when removing the roofs of the buildings as well as bat injury/mortality occurring through roost destruction when dismantling the units.

6. Further Surveys

Table 7: Further Surveys Suggested for EPS

Species	Suggested Surveys
Reptiles	No surveys for reptiles are required if mitigation is undertaken; hand search survey before scrub clearance during the reptile active season (April-September).
Bats	The woodland on the western boundary has the potential to be used by bats for foraging and commuting, however no trees on the border of the woodland showed no signs of roosting potential - no survey required. The scattered trees along the northern wall of Unit F have negligible suitability for roosting bats- No bat surveys are required for the negligible suitability trees. Units B, C, D, E were given a suitability level of 'low' due to a number of bat access points into the units and the features suitable for roosting bats – A single Phase 2 bat survey will be required prior to demolition of these three units. The survey would involve surveyors located in key spots to watch for bats emerging/re-entering the buildings. Units A and F were identified with negligible potential to support roosting bats and therefore no further surveys are required. Phase 2 surveys are seasonally restricted between May and September (inclusive). If the phase 2 survey confirms bats are present in order to continue with the demolition of the buildings a Natural England Protected Species Licence will be required before the roost(s) could be lawfully destroyed.

7. Recommendations for Mitigation

- 7.1 Removal of the trees and demolition of buildings should occur outside of the bird breeding season which extends from March-August. If, however vegetation clearance and building demolition must commence during the nesting bird season then an ecologist must inspect the features, a maximum of 48hrs prior to removal. If nests are found, work is to be halted and the nest left undisturbed with an exclusion zone until the nest is no longer in use.
- 7.2 To avoid the risk of killing and injury to reptiles, scrub removal is to occur onsite during the active season for reptiles, April-September, during this time reptiles are able to relocate. Removal must follow a hand search conducted by an ecologist to ensure there are no reptiles utilising the scrub. During hibernation season reptiles may utilise the scrub and not have opportunity to move elsewhere if disturbed.
- 7.3 Noise disturbance can be minimised by avoidance of vehicle idling.
- 7.4 Excavations should be covered over night or ramps installed to prevent animals, such as badgers becoming trapped or to allow trapped animals to escape.
- 7.5 Pollution control measures to prevent impacts from pollution and run off should be implemented following CIRIA 2001 C532. Measures are also to be employed to ensure dust is minimised during the construction works.
- 7.6 Lighting spill into offsite habitats will negatively impact nocturnal species. Mitigation will be applied by only lighting specific areas such as doors and the yard, using a minimal level of lighting and lowering the height of lights

8. Recommendations for Enhancements

- 8.1 In accordance to Policy DME17 of the Hillingdon Local Plan, biodiversity protection and enhancement measures will take place onsite. Landscaping will be designed to include locally native species suitable for the onsite conditions and for the benefit of both protected and non-protected species.
- 8.2 Plan 10773-P-101 shows planting of trees along the western fence boundary adjacent to the woodland. Between the singular trees, which are to be of elder (*Sambucus nigra*), ash (*Fraxinus excelsior*) and rowan (*Sorbus aucuparia*) composition, native hedgerow shrubs are planted to create an approximately 1 metre green edge buffer between the site compound and offsite land. The hedgerow will be planted with native species such as hawthorn (*Crataegus monogyna*), holly (*Ilex aquifolium*) and field maple (*Acer campestre*). The hedgerow would require maintenance in accordance with British Standards, including BS5837 (2012) and BS4428 (1989). Hedgerow planting would provide an ecological benefits including foraging, commuting and shelter to a multitude of species. By landscaping the western boundary of the site, the proposal adheres to Policy DME16 of the Hillingdon Local Plan by minimising development impact in a green edge location.
- 8.3 Creation of a green border between the adjacent woodland and building compound increases permeable surface area which would reduce the amount of water runoff entering the drainage system.
- 8.4 Plan 10773-P-101 shows the northern wooden fence boundary to be replaced by a metal security fence. A soft landscaping border along this fence of approximately 30cm, or a raised thin planting trough for climbers will be established. The metal fence posts are to be connected with a chain link, trellis or wire where native or wildlife friendly climbing species such as Ivy (*Hedera helix*), honeysuckle (*Lonicera periclymenum*), travellers joy (*Clematis vitalba*) and dog rose (*Rosa canina*) will utilise the fence and create a green structure. A green fence will reduce air pollutants, increase oxygen and incorporates as far as possible Policy DMHB16 of the Hillingdon Local plan where living walls and roofs are encouraged.
- 8.5 External lighting will be set to motion sensors and short timers in order to limit the times that lights are on to provide dark periods, reducing the ecological impact on nocturnal species.
- 8.6 Boundary fences will include small openings at ground level, to allow small mammals to pass through the site and maintain local connectivity.
- 8.7 Two bird boxes will be installed on the northeast elevation of the building close to the roof wall join above the proposed lights. Two more bird boxes will be installed on the northwest elevation of the buildings. Boxes are to be erected 4m above ground and be of various design in order to benefit a range of species; large, small, open-front, front with a hole and those suitable for building dwelling birds such as swift (*Apus apus*) and house sparrow.
- 8.8 Two bat boxes are to be erected at least 4m above ground level on the southwest elevation of the building above the lighting and close to the roof wall join. Two more bat boxes will be installed on the southeast elevation of the building in similar locations. A combination of cavity bat boxes, bat bricks and bat tiles will be utilised as part of the building design, creating suitable habitat for crevice dwelling species. All new roost provision will be situated away from light spill and clear flight corridors.

9. BREEAM Assessment Results: Land Use and Ecology (LE)

This assessment has been undertaken with all information available at the time of writing, as such there are some areas where additional surveys are still to be undertaken and therefore the Client has been required to confirm the required surveys and further reports will be completed as specified this assessment. Non-residential developments are required to achieve a minimum of very good under the relevant BREEAM assessment criteria (Hillingdon Local Plan: Part 2, 2014).

9.1 LE01 Site Selection

To encourage the use of previously occupied or contaminated land and avoid land which has not been previously disturbed.

Site: Uxbridge Industrial Estate, Barton Buildings

Assessment Criteria	Credits Available	Credits Awarded
1) At least 75% of the proposed development is on previously occupied land	1 Credit	1 Credit
Comments: 100% of the proposed development is located on an area of previously developed land. As such this credit is achieved.		
2) A contaminated land professional undertakes a site investigation, risk assessment and appraisal, which deems that land within the development footprint to be affected by contamination	1 Credit	0 Credit
Comments: This credit cannot be achieved until a contaminated land investigation has been carried out. A contaminated land professional should confirm details re. Criteria 2.		

9.2 LE 02 Identifying and understanding the risks and opportunities for the site

To determine the ecological baseline and zone of influence of the site and identify risks and opportunities for achieving optimum outcomes

Site: Uxbridge Industrial Estate, Barton Buildings

Prerequisite		
1) Assessment route selection		Route 2
Comment: BREEAM Guidance Note GN34 Ecological Risk Evaluation Checklist has been used to determine that Route 2 is applicable for this development due to a 'Yes' answer to Section 1 within Note GN34, and following advice from the SQE.		
2) The client or contractor confirms monitoring of compliance with all Relevant UK and EU or international legislation		Yes
Comment: Compliance is monitored against all relevant UK and EU or international legislation relating to the ecology of the site - an ecologist was		

appointed at an early stage, a survey and evaluation has been carried out to determine the ecological baseline of the site and zone of influence to establish current and potential ecological value, risks to current ecological value, capacity and feasibility for enhancement. The Ecological Site Assessment and Potential Roost Assessment (PRA) Report identifies and has made recommendations in order to comply with relevant legislation.

Assessment Criteria (Route 2)		Credits Available	Credits Awarded
1)	Survey and Evaluation	1 Credit	1 Credit
- A Suitably Qualified Ecologist (SQE) carries out a survey and evaluation for the site early enough to influence site preparation works, layout and, where necessary, strategic planning decisions Comment: Consultant Ecologist Katie Jones BSc (Hons) MCIEEM has been appointed as the SQE for the site pre-planning submission therefore this criteria is considered to be met. - The SQE's survey and evaluation determines the site's ecological baseline, including; a. Current and potential ecological value and condition of the site and related areas within the Zone of Influence; b. Direct and indirect risks to current ecological value from the project c. Capacity and feasibility for enhancement of the site's ecological value and, where relevant, areas within the Zone of Influence Comment: An appropriate ecological baseline survey was carried out and report produced by SQE Ecologist Katie Jones BSc (Hons) MCIEEM which addresses the above. As such, the provision of the baseline survey information is considered to be acceptable. - Data is collated and shared with the project team to inform site preparation, design and construction works. Comment: The Ecological Survey and PRA Report reports were shared with the project team			
2)	Determining ecological outcomes	1 Credit	1 Credit

- Survey and evaluation criteria relevant to the chosen Route have been achieved.

Comment: To date, the Ecological Assessment and PRA have been carried out. A further Phase II Emergence/ Re-entry Survey is recommended, the client has confirmed to CES the Phase II survey will be conducted.

All CES Ltd surveys followed nationally standardised methodologies, all evaluations have followed best practice guidelines including the Chartered Institute of Ecology and Environmental Management's ("CIEEM") Ecological Impact Assessment ("EclA") guidance, and surveys will follow the Bat Conservation Trust good practice guidelines (3rd edition).

Therefore the survey and evaluation criteria are considered to have been achieved.

- During concept design, the project team liaise and collaborate with representative stakeholders to identify the optimal ecological outcome for the Site.

Comment: A 1 metre wide border will be planted along the western fence line consisting of native trees and shrubs, this will provide a buffer to the broadleaved woodland to the west of the site. A 30cm wide planting bed will border the northern boundary fence and is designed for climbers to be planted and climb up the fence using a trellis, this will create a green wall type ecosystem. Additionally boxes for bats and birds will be installed on the new buildings to further enhance the ecological value of the Site. Low value trees on site will be removed, however the above ecological enhancements have been recommended and discussed with the design team and final landscape proposals have been proposed.

- Identify, appraise and select measures to meet the optimal ecological outcomes for the site in line with the mitigation hierarchy of action.

Comment: The Ecological Assessment and PRA Report considered the presence / likely absence of protected species and habitats. With the assumption that SQE recommendations for any mitigation following outcome of the recommended Phase II bat emergence / re-entry survey are complied with.

The Ecological Assessment and PRA Report have set out enhancement of existing site habitats to be implemented.

- The optimal ecological outcome is selected after liaising with the representative stakeholders and the project team.

Comment: Planting proposals are to be provided within the scheme which show an optimal ecological outcome for the Site; in addition, there will be installation of bat and bird boxes, to maximise the ecological outcome within the design. The planting proposal received on 24th March 2020 drawing no: 10773-P-LO2 provided evidence that the bat and bird boxes will be installed and the planting will be adhered to, if the specifications set out by CES are achieved then it is recommended the credit is achieved.

Assessment Criteria	Credits Available	Credits Awarded
3) Exemplary level criteria - Wider site sustainability	1 Credit	0 Credit

- Additional Exemplary Level credit is also available

Comment: Achievement of the third Exemplary Level Criteria would need to be decided by the Assessor. Achievement of the credit requires credits to be achieved in other BREEAM chapters not available to CES Ltd at the time of writing.

9.3 LE 03 Managing negative impacts on ecology

To avoid, or limit as far as possible, negative impacts on the ecology of the site and its zone of influence arising as a result of the project.

Site: Uxbridge Industrial Estate, Barton Buildings

Prerequisite	
1) Assessment route selection	Route 2
2) Identification and understanding the risks and opportunities for the site	Yes

Comment: LE02 is achieved - compliance is monitored against all relevant UK, and EU or International legislation relating to the ecology of the site - negative impacts from site preparation and construction works have been managed according to the mitigation hierarchy (avoidance, protection, limitation or control of the negative impacts on features of ecological value on site) and the loss of ecological value has been limited as far as possible.

Assessment Criteria	Credits Available	Credits Awarded
1) Planning, liaison and implementation	1 Credit	1 Credit

- Roles and responsibilities for managing negative impacts on ecology are clearly defined and allocated to support successful project delivery at early stages to influence the preparation, brief or concept design

Comments: The Project Manager / Site Manager is aware of the Ecological Survey and PRA reports and required actions.

- The potential impact(s) of site preparation and construction are identified at an early project stage to optimise benefits and outcomes.

Comments: CES Ltd were appointed to undertake an Ecological Site Survey on the site and advise on any ecological constraints and opportunities prior to plans being finalised. Potential impacts on habitats and species are outlined in the Ecological Survey and PRA reports and enhancement measures recommended within the reports enclosed are to be implemented on site.

- The project team and representative stakeholders have proposed solutions and measures are implemented during site preparation and construction works.

Comments: Mitigation measures for habitats and species to be impacted are outlined in the Ecological Survey and PRA reports. Envision, or their appointed contractor, are to adhere to recommendations within these documents. Envision has confirmed the Phase II bat surveys will be completed and any further recommendations following Phase II Bat surveys will be undertaken.

Assessment Criteria	Credits Available	Credits Awarded
2) Managing negative impacts of the project	2 Credits	2 Credit

- Negative impacts from site preparation and construction have been managed according to the hierarchy and either;
 - No overall loss of ecological value has occurred (2 credits); or,
 - The loss of ecological value has been minimised (1 credit).

Comments: Negative impacts from site preparation and construction have been managed in accordance with the mitigation hierarchy.

The Client has confirmed that a Phase II bat survey will be conducted as recommended within the Ecological Survey and PRA report to confirm risk to bats using the buildings on site. If all recommendations following these surveys are adhered to, CES recommends the awarding of this credit

Planting along the western border of 1m wide native trees and shrubs has been proposed to provide a buffer to the broadleaved woodland to the west of the site. Climbers will be planted within a 30cm wide planter along the northern boundary fence utilising a trellis on the fence. Additionally boxes for bats and birds will be installed on the new buildings to further enhance the ecological value of the Site. Low value trees on site will be removed, however the above ecological enhancements have been recommended and discussed with the design team and final landscape proposals have been proposed.

Evidence has been provided to CES Ltd on 24th March 2020 by Envision that the recommendations will be followed, if CES receive evidence that the planting proposals and bat and bird boxes have been installed, it is considered that 'The loss of ecological value has been minimised' and CES recommend the achievement of 1 credit.

In accordance with GN36 Ecology Calculation Methodology-Route 2,

The simplified approach was undertaken due to there being no habitats present that are assigned a high level of distinctiveness

The final landscaping plans and proposed planting scheme comprises proposed habitats with native species which will maximise the ecological value of the Site.

The client has confirmed the additional Phase II bat survey will be completed, and if no bats are found to be roosting onsite, or if the client follows the recommendations given to them in light of the survey results, an outcome of 'No overall loss of ecological value' can be confirmed and CES recommends awarding 1 credit.

9.4 LE 04 Change and enhancement of ecological value

To enhance the ecological value of the site and areas within its zone of influence in support of local, regional and national priorities.

Site: Uxbridge Industrial Estate, Barton Buildings

Prerequisite		
1)	Assessment route selection	Route 2
2)	Identification and understanding the risks and opportunities for the site	Yes
Comment: Credits within LEO4 can only be achieved if Criteria 2 and 3 under LE03 have been achieved. LE03 criteria 02 and 03 are considered to have been achieved, as CES Ltd was appointed pre-planning to advise on the ecological value of the site pre-development, and appropriate recommendations have been made within the Ecological Survey and PRA report.		

Assessment Criteria		Credits Available	Credits Awarded
1)	Liaison, implementation and data	1 Credit	1 Credit
- The project team, liaising and collaborating with representative stakeholders and taking into consideration data collated and shared, have implemented the solutions and measures selected in a way that enhances ecological value in the following order: a. On site, and where this is not feasible; and b. Off site within the zone of influence. Comments: CES Ltd have recommended planting along the western border has been proposed to provide a buffer to the broadleaved woodland to the west of the site. Additionally boxes for bats and birds have been recommended to be installed on the new buildings to further enhance the ecological value of the Site. Low value trees on site will be removed, however the above ecological enhancements have been recommended and discussed with the design team and final landscape proposals have been suggested. This will provide an enhancement for wildlife and once installed and the vegetation matured, are considered to provide an enhancement in ecological value to the Site.			

- Data collated is provided to the local environmental records centres nearest to, or relevant for, the site.

Comments: No records of protected, locally important or scarce species were recorded during the Ecological Assessment. A Phase 2 Bat survey has been recommended following the Ecological Assessment survey. Not yet completed. Following completion of the above Phase 2 bat survey supply of data to the local records centre can be made, should there be any.

Assessment Criteria	Credits Available	Credits Awarded
2) Enhancement of ecology	3 Credits	3 Credits

- Based on the calculation of the change in ecological value occurring as a result of the project, calculated in accordance with the process set out in GN36 - BREEAM, CEEQUAL and HQM Ecology Calculation Methodology – Route 2, credits are awarded as follows:
 - Minimising loss of ecological value (1 credit - score of 75 – 94%);
 - No net loss of ecological value (2 credits - score of 95 – 104%);
and
 - Net gain of ecological value (3 credits - score of 105 – 109%).

Comments:

The hedgerow of intermittent trees and shrubs planted with native species alongside the green climbers planted on this site will achieve 3 credits.

Pre-development Linear Habitats (Length of Linear Habitat type (m) x Condition)	Scrub: 8 x 1 = 8 Trees: 18 x 1 = 18 Total: 26
Post development Linear habitats (Total pre-development units – Total pre-development units lost)	Line of hedgerow with trees: 40m Climbers: 38m

+ Total Length of habitats created)	(26-26) + 78 = 78
Percentage change in biodiversity units (Total post development units/Total pre-development units x 100)	78/26 x 100 = 300%

- An additional Exemplary Level credit is also available within LE05. The Exemplary Level credit is awarded for a 'Significant net gain of ecological value (with a percentage score of 110 or above)'. 1 Credit **1 Credit**

Comments: As the percentage score is 300, an additional exemplary level credit is available.

9.5 LE 05 Long term impact on biodiversity

To secure ongoing monitoring, management and maintenance of the site and, its habitats ecological features to ensure intended outcomes are realised for the long term.

Site: Uxbridge Industrial Estate, Barton Buildings

Prerequisite	
1) Assessment route selection	Route 2
Comment:	
2) Identification and understanding the risks and opportunities for the site	Yes
Comment: Following the recommended Phase II Bat survey is completed, CES Ltd will update any requirements for licensing or if presence of Ecological Clerk of Works (ECOW) is required to supervise certain activities relating to site clearance and construction. Following the recommended Phase II bat survey CES Ltd will confirm any requirement for a compliance visit, which if required will be undertaken by a suitably qualified ecologist to ensure that all recommendations, including enhancements, have been correctly implemented. Provided that the above is undertaken, it is considered that effective monitoring will be in place to confirm compliance against all relevant legislation.	

- 3) Criteria 2 and 3 under LE03 have been achieved and at least one credit under LE04 has been awarded Yes

Comment: LE03 Criteria 2 and 3 have been achieved and at least 1 LE04 credit for Change and enhancement of ecology' has been awarded.

Assessment Criteria	Credits Available	Credits Awarded
1) Liaison, monitoring implementation, evolving management and maintenance solutions	1 Credit	1 Credit

- The project team liaise and collaborate with representative stakeholders, taking into consideration data collated and shared, on solutions and measures implemented to:
 - a. Monitor and review the effectiveness with which the plans for LE03 & LE04 are implemented; and
 - b. Develop and review management and maintenance solutions, actions or measures.

Comments: Planting along the western border will provide a buffer to the broadleaved woodland adjacent to the site. Ecological enhancement and mitigation recommendations include sensitive working methodologies alongside erection of bat and bird boxes which will be plotted onto a plan and a post construction verification visit will confirm their attachment or advise of the requirement to retrospectively install if they are absent. Avoidance of light spill has been recommended to protect nocturnal species and gaps in fences have been suggested to allow movement for small mammals. All effort to maximise the ecological value of the Site has been made.

The finalised Ecological Management Plan will advise on this, including numbers of enhancement features and recommended locations. As part of this process a monitoring programme will be drawn up to ensure that this criteria is met. The monitoring programme will also assess whether ecological enhancement recommendations and the proposed landscaping planting scheme have been implemented on Site.

- As part of the tenant or building owner information supplied, include a section on Ecology and Biodiversity to inform the owner or occupant of local ecological features, value and biodiversity on or near the site.

Comments: The client confirms the owner will be in receipt of the ecological reports for the site detailing all ecological features, their value and how to protect them.

CES Ltd can advise on relevant information to be included within the information in the buyers pack.

Assessment Criteria	Credits Available	Credits Awarded
2) Landscape and management plan	1 Credit	1 Credit

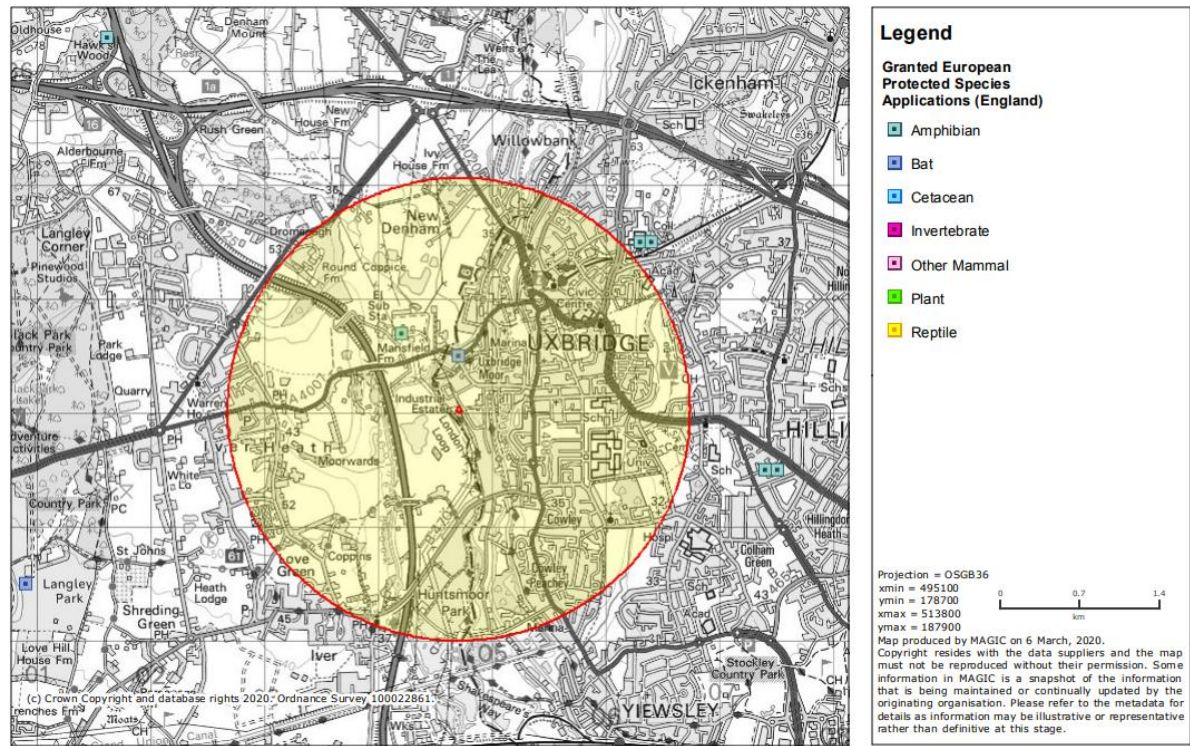
- Landscape and ecology management plan, or equivalent, is developed in accordance with BS 42020:2013 Section 11.1(202) covering as a minimum the first five years after project completion and includes:
 - a. Actions and responsibilities, prior to handover, to give to relevant individuals;
 - b. The ecological value and condition of the Site over the development life;
 - c. Identification of opportunities for ongoing alignment with activities external to the development project and which supports the aims of BREEAM's Strategic Ecology Framework;
 - d. Identification and guidance to trigger appropriate remedial actions to address previously unforeseen impacts; and
 - e. Clearly defined and allocated roles and responsibilities.

Comments: The client has confirmed a finalised 5 year management plan will be produced to meet the requirements of BS 42020:2013 Section 11.1(202) and above criteria. Assuming this is undertaken, CES advises the credit should be rewarded.

Table 9: Summary of BREEAM Credits

BREEAM section	Available credits	Pre-Requisite(s) Met?	Credits likely to be awarded based on evidence	Further action to gain residual credits
LE01	Up to 2	N/A	1	A Contaminated land professional to confirm if criteria 2 & 3 can be met to achieve an additional 1 credit.
LE02	Up to 2 + 1 Exemplary	Yes	2	Achievement of the exemplary credit under LE02 to be decided by the assessor. Achievement of this credit requires credits to be achieved in other BREEAM chapters not available to CES Ltd at the time of writing.
LE03	Up to 3	Yes	3	Additional 1 Credit is advised to be awarded following a Phase II bat survey confirming no roosting bats are present, if the survey proves 'No overall loss of ecological value' or if CES recommends the credit is awarded.
LE04	Up to 4 + 1 Exemplary	Yes	4	The calculation of the change in ecological value occurring as a result of the project, has been calculated in accordance with the process set out in GN36 - BREEAM Net gain of ecological value As the percentage score is 300, an additional exemplary level credit is available (3 credits - score of 105 – 109%).
LE05	Up to 2	Yes	2	The client has agreed a 5 year management plan will be produced, assuming this is undertaken CES recommends this credit should be awarded.
Total	Up to 13 (+ 2 Exemplary)	N/A	12	

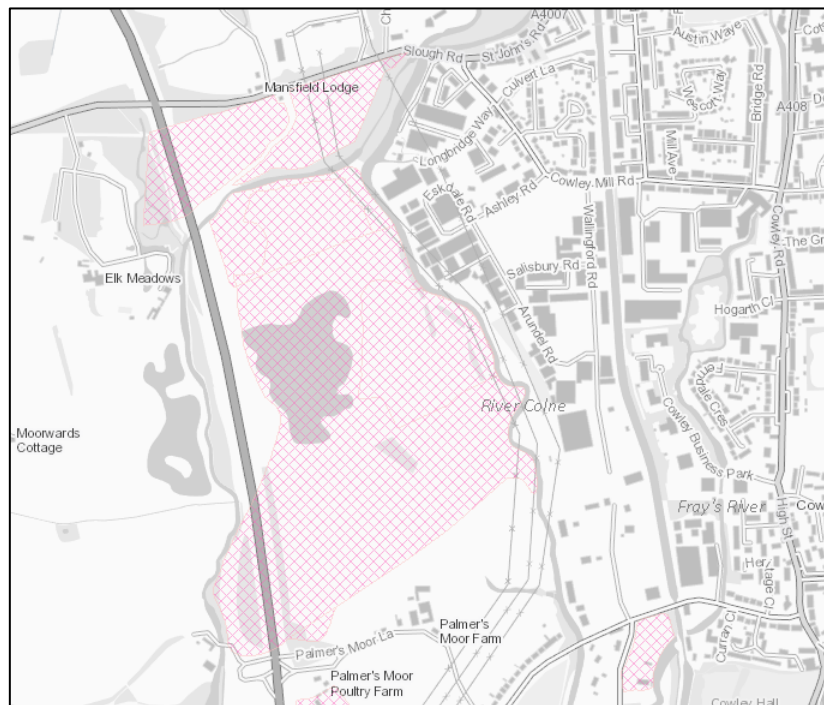
10. Appendix A



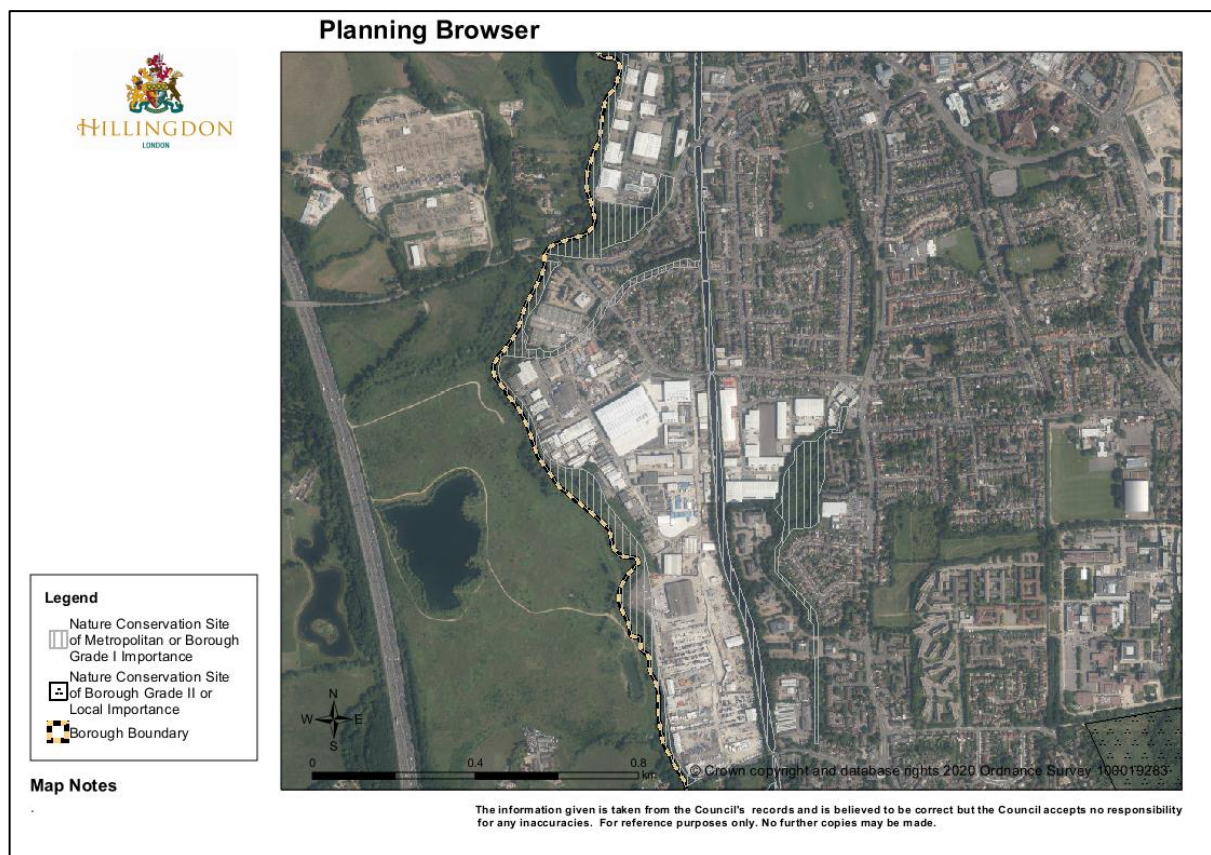
Appendix A Figure 1: Location of EPS applications within 2km buffer (Magic.gov.uk)



Appendix A Figure 2: Site Location Map (QGIS)



Appendix A Figure 3: Historic landfill sites (DEFRA, 2020)



Appendix A Figure 4: Hillingdon SINC Map (Hillingdon Council, 2020)

Appendix B

PRA: Unit A

Current use: RnR studios

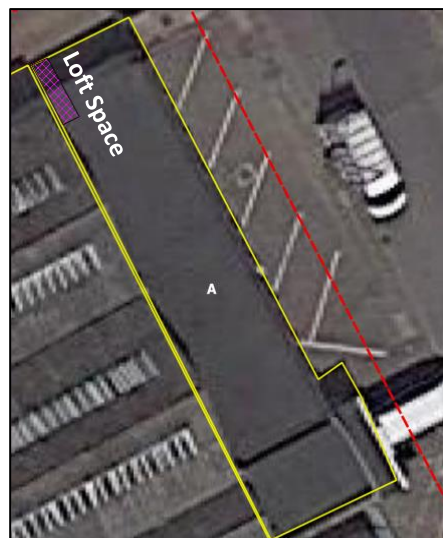
Interior description: Unit A is a multi-roomed music studio with low ceilings in good condition. There is access to a loft space via a staircase, the loft area is small with beams and a large window, allowing light to penetrate most of the room. It is likely the building is heated and was of a relatively warm temperature at the time of survey. Being a music studio it is likely to create internal noise disturbance.

Exterior description: Unit A has a flat, concrete roof with pitched roofing behind. The concrete roof has a raised wall on its perimeter. The walls are concrete.

Bat suitability: There were no signs of bat roosting or activity within the loft section or in any of the rooms. There were no signs of access for bats to the interior of the building. The light from the loft windows limits opportunity for roosting places. **Negligible Suitability.**



Appendix B Figure 1: Unit A of Barton Buildings faces east toward Arundel Road (Google Street View)



Appendix B Figure 2: Unit A from satellite highlighting the accessible loft space (QGIS)

Unit A Exterior



Appendix B Figure 3: Unit A front, flat concrete roof with roller door



Appendix B Figure 4: Northern wall of Unit A facing north



Appendix B Figure 5: Northern wall Unit A facing north

Unit A Interior



Appendix B Figure 6: Loft space window fills the loft with light



Appendix B Figure 7: Loft space beams

PRA: Unit B

Current use: Trinity Set and Stage

Interior description: The unit is divided into two offices and a workshop. The offices are in good condition with polystyrene tiled ceilings and flat roofs. The workshop is well lit by the windows in the roof and the roof experiences a mass of cobwebs. The workshop is exposed to high levels of noise. There is a mezzanine area on the southern wall. The workshop section of the unit showed no signs of heating resulting in a relatively cold and constant temperature at the time of survey.

Exterior description: Unit B has a flat concrete roof to the front and a pitched asbestos type sheeted roof at the rear over the workshop. There is opportunity for a wall-roof gap between the asbestos sheets and top of the wall. Gaps potentially suitable for bats were identified between the roller door and the roof on the eastern wall. Two flood lights were noted, one at the entrance facing east and the other lighting the alley between the adjacent building to the south.

Bat Suitability: There were no signs of bat activity in the unit or on the exterior of the building. The high levels of light within the workshop reduced the likelihood that bats would use the interior for roosting and no crevices inside the unit were deemed suitable for roosting. The exterior displayed more signs of bat potential, including a possible access point on the southern external wall in the alley and between the roller door and wall on the front of the building. **Low Suitability.**



Appendix B Figure 8: Front of Unit B facing east toward Arundel Road (Google Street View)



Appendix B Figure 9: Unit B satellite image divided into office and warehouse space (QGIS)

Unit B Exterior



Appendix B Figure 10: Unit B pitched roof



Appendix B Figure 11: Crevice between roller door and roof



Appendix B Figure 12: Alley between adjacent buildings with a flood light

Unit B Interior



Appendix B Figure 13: Workshop roof with windows filling the unit with light



Appendix B Figure 14: Workshop roof with no ceiling cavity



Appendix B Figure 15: Mezzanine storage area creating a darker space

PRA: Unit C

Current use: ADR Engineering

Interior description: Unit C is a large, open warehouse, with a small office with a suspended polystyrene tiled ceiling on the left of the entrance. The windows in the pitched roof flood the warehouse with light. Activities create a very noisy environment during the day, which is echoed around the warehouse. There are mezzanine floors at the entrance and on the back wall of the warehouse, Figure 23 shows the approximate location of the upper floors. The mezzanine levels lacked lighting in places and created dark spaces both above and below. The mezzanine levels experienced pockets of higher temperatures. The warehouse ceiling experienced degradation, there were holes in some of the ceiling tiles allowing for bat access between the roof and ceiling. There were numerous cobwebs on the ceiling. The workshop was heated by a heater.

Exterior description: Unit C has multi-pitched roofs with asbestos style boards. There is over hang between the roof wall allowing space for bats to access. There are multiple roller door entrances, where roller doors connect to the wall there are opportunities for crevices. One window which faces the yard has a hole in the glass allowing internal access. There is a flood light facing into the yard on the northern wall.

Bat Suitability: There were no signs of suitable access points or evidence of roosting bats within the warehouse, however on investigation of the exterior, a smashed window on the bottom floor may provide a suitable access point for bats. The increase in temperatures on the mezzanine levels combined with the lower light levels both on the mezzanine levels and underneath suggest there is an opportunity for bat roosting. In addition, the damaged ceiling tiles allow for access to the cavity void between the roof and ceiling which may provide roosting opportunity. However, the activities within the warehouse during the day, create a loud, extremely disturbed environment and the external floodlights limit the suitability of the building. **Low Suitability.**



Appendix B Figure 16: Front of Unit C facing southwest



Appendix B Figure 17: Satellite image of Unit C displaying mezzanine sections (QGIS)

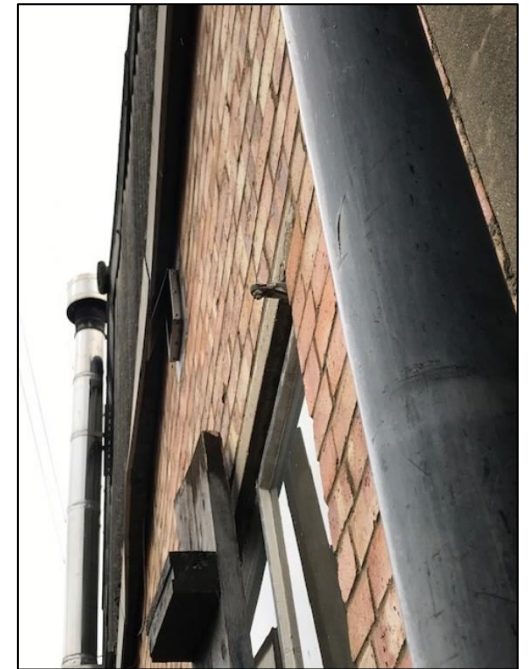
Unit C Exterior



Appendix B Figure 18: Northern wall of Unit C



Appendix B Figure 19: Broken front window circled in red



Appendix B Figure 20: Gap between wall and roof boards



Appendix B Figure 21: Front face of Unit C facing west toward the industrial yard

Unit C Interior



Appendix B Figure 22: Pitched roof with windows running the length of the building keep the warehouse in light



Appendix B Figure 23: Warehouse ceiling has cobwebs



Appendix B Figure 24: Potential crevices in wall and ceiling join



Appendix B Figure 25: : Damaged ceiling boards allowing for potential access into ceiling cavity



Appendix B Figure 26: Ceiling and wall join, lots of cobwebs



Appendix B Figure 27: Beams underneath darker Mezzanine area

PRA: Unit D

Current use: Colin Fryer Car Care, Mechanics

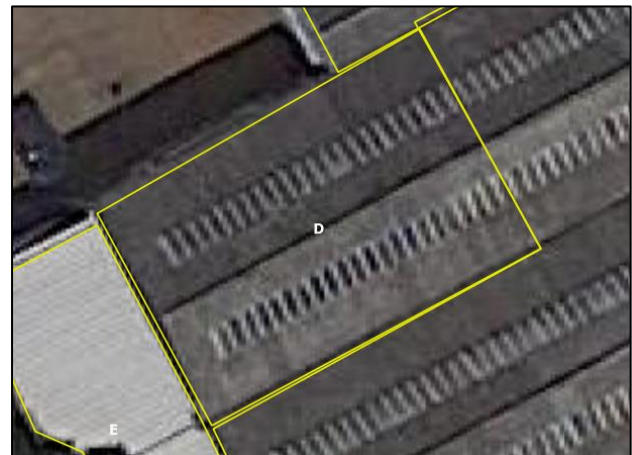
Interior Description: Unit D is a moderately sized warehouse unit with a small office and a mechanic workshop . It is smaller than Units B and C which have the same style pitched roof. Above the office there is a mezzanine floor. The unit appears to experience less noise disturbance than the other units, however it still occurs. Windows line the pitched roof face and flood the warehouse with light. In the northeast corner there is a sizeable gap between the wall and roof. In the corners of the room there are gaps and crevices where the walls join. There was no sign of heating within the unit, suggesting temperature was relatively cold and consistent.

Exterior description: Unit D has a pitched roof with asbestos style boarding underlined with bitumen felt, there appears to be access between the roof and the wall creating a gap that bats could access. There is a flood light situated below the roof. The unit has a roller door which creates a crevice on top where it connects to the wall.

Bat Suitability: The gap in the northeast corner may be suitable for bats to enter directly into the warehouse, although the gap was surrounded by intact cobwebs at the time of survey suggesting bats/birds had not flown through. Crevices in the adjoining walls may also be suitable for bats to roost. Externally, there are crevices between the roof and wall tops which may allow bats to access the building. The lighting facing the yard may reduce likelihood for bats to roost nearby. Noise disturbance is likely from the workshop activities. The windows in the roof fill the warehouse with light allowing for no dark spaces for roosting. No signs of bats were found in the interior or exterior of the unit. **Low Suitability.**



Appendix B Figure 28: Front of Unit D facing south in the building's yard



Appendix B Figure 29: Unit D (QGIS)

Unit D Exterior



Appendix B Figure 30: Crevice between wall and guttering



Appendix B Figure 31 : Access point between roof and wall

Unit D Interior



Appendix B Figure 32: Warehouse windows fill the unit with light



Appendix B Figure 33: Crevices between wall joins in the corners of the room



Appendix B Figure 34: Access point in southeast corner circled in red

PRA: Unit E

Current use: Safety First and Switchboard Room

Interior description: Unit E is a workshop with an office space which is comparatively smaller than the other units. The ceiling is suspended polystyrene tile with a cavity between the ceiling tiles and sloping roof. The ceiling experiences degradation such as missing tiles and holes allowing for access into the roof cavity. The unit experiences less light infiltration but is not considered to be dark. The unit experiences disturbance from noise.

The workshop leads to a switchboard room; the room is small, with a window and an embedded broken fan which creates an access point from the exterior. The switchboard room ceiling and wall join has crevices. The unit showed no signs of heating resulting in a relatively cold and consistent temperature at the time of survey.

Exterior description: During the survey, we were advised Unit E has had a roof replacement within the last 5 years, the roof is made from metal sheeting. A roller door occupies the front wall, there are cavities at the connection between the roller door and the wall where bats could gain access. The area between the unit and the western boundary fence has some scrub vegetation, overhanging Elder and Willow trees and climbing ivy (*Hedera helix*) on the unit external wall, the trees were not valuable for roosting.

Bat Suitability: The broken fan in the window provides an access point into the interior; this access point opens onto deciduous woodland. There are external crevices at the connection to the rolling door and the wall. No signs of bats were found in the interior or exterior of the unit. **Low Suitability.**



Appendix B Figure 35: Frontage of Unit E facing north into the buildings yard



Appendix B Figure 36: Unit E and approximate location of the switchboard room in the unit

Unit E Exterior



Appendix B Figure 37: Disused area in the southeast corner of Unit E



Appendix B Figure 38: Ivy (*Hedera helix*) encroaches the western wall of Unit E



Appendix B Figure 39: Potential wall roof gap below guttering



Appendix B Figure 40: View of potential access point through the switchboard room window and broken fan



Appendix B Figure 41: Overhanging Elder (*Sambucus* spp.) and willow (*Salix* spp.) from adjacent woodland- all negligible for roosting

Unit E Interior



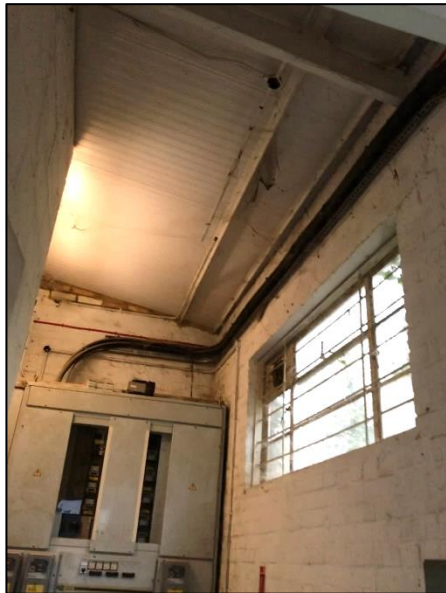
Appendix B Figure 42: Unit E degraded ceiling boards allowing access to cavity between ceiling and roof



Appendix B Figure 43: Windows fill the unit with light



Appendix B Figure 44: Gaps in the ceiling tiles allows for access points between the roof and the ceiling cavity.



Appendix B Figure 45: Switchboard room roof is metal and relatively new.



Appendix B Figure 46: Potential access route via the broken fan in a window on the bottom floor. The access hole opens out into the woodland.



Appendix B Figure 47: Crevices created around the wooden beams when they meet the wall in the switchboard room.

PRA: Unit F

Current use: Multi-storage Warehouse

Interior description: Unit F has ivy *Hedera helix* entering the warehouse on the southwestern corner; suggesting there is a sufficient crevice between the roof and wall for vegetation to enter. Where the wooden roof beams meet the wall a crevice is made. The unit is insulated inside with polystyrene and heated to a constant temperature. There is no sign of degradation on the roof.

Exterior description: The warehouse has a pitched metal roof which appears to be more modern than the other Barton buildings units. The roof and walls appear to connect sufficiently with no gaps appearing on the front of the building. There are singular immature/semi-mature trees between the northern wall and the boundary fence, identified as a singular Ash (*Fraxinus spp.*) and multiple Elder *Sambucus spp.*

Bat Suitability: Ivy (*Hedera helix*) entering the building suggests a crevice in the warehouse southwest corner, no other access points were noted. The unit appears to be in a better condition than all the other Barton units and appears to be generally well sealed excluding the southwest corner. Windows in the roof ensures the warehouse is well lit and there are no dark spaces.

No signs of bats were found in the interior or exterior of the unit. **Negligible Suitability.**



Appendix B Figure 48: Exterior of Unit F facing east into the buildings yard



Appendix B Figure 49: Satellite image of Unit F (QGIS)

Unit F Exterior



Appendix B Figure 50: Unit F frontage from buildings yard facing east



Appendix B Figure 51: Crevice created between the top of the roller door and the east facing wall



Appendix B Figure 52: Multiple semi-mature Elder (*Sambucus* spp.) trees on the northern wall boundary.



Appendix B Figure 53: View into offsite woodland and over head powerlines.



Appendix B Figure 54: A semi-mature Ash (*Fraxinus* spp) tree on the northern wall boundary.

Unit F Interior



Appendix B Figure 55: Ivy (Hedera helix) on the southwest corner, entering through a wall-roof gap.



Appendix B Figure 56: Metal roof with windows fill the unit with light.



Appendix B Figure 57: Wooden beams on the roof, a cavity is created where the beam meets the unit wall.

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